



December 6, 2011

Hydrokinetics, Inc.
Attn: Pat O'Brien
12975 W. 24th Place
Golden, CO 80401

RE: ECCV DI-1 Step-Rate Test Results

Dear Mr. O'Brien,

Following review of the data sent to us, we have determined that the step rate test run on the DI-1 injection well shows no indication that formation fracture pressure was reached. The attached graph of bottom hole pressure versus pumping rate does not show any evidence of a downward break in the trend line. A downward breaking trend in the pressure vs rate plot is evidence that the formation fracturing has been exceeded, and this is not evident in the data presented to us.

The highest rate achieved on the test was 39.35 barrels per minute, at a surface treating pressure of 4750 psig. We therefore believe that in accordance with the stipulations on page 4 of the EPA Region 8 Step-Rate Test Procedure, in our opinion a maximum surface injection pressure of 4750 psi is substantiated by the test data.

Should you have any questions please contact me at 970-669-7411.

Sincerely,

PETERSON ENERGY MANAGEMENT, INC.

Andy Peterson, P.E.
President



DI-1 step test analysis

pat obrien

to:

Wendy Cheung

12/06/2011 11:03 AM

Hide Details

From: "pat obrien" <pwob@comcast.net>

To: Wendy Cheung/R8/USEPA/US@EPA

2 Attachments



John Ashby frac letter.pdf Andy Peterson frac letter.pdf

Wendy,

Here are the letters from the petroleum engineers involved with the step rate testing on DI-1. Both Andy and John have decades of experience with completion, step testing and analysis of deep wells in the area of interest.

Bottom line is they see no indications of fracturing in the final step test on the overall perforated zones.

Based on the above, we request that the EPA issue the injection well permit that allows keeping the maximum allowable pressure at 3120 psi in place.

Thanks,

Patrick OBrien

Ashby Drilling Corporation

PO Box 19978

Boulder, Colorado 80308

2 December 2011

Patrick O'Brien

Hydrokinetics, Inc.

12975 W. 24th Place

Golden, Colorado 80401

Dear Mr. O'Brien:

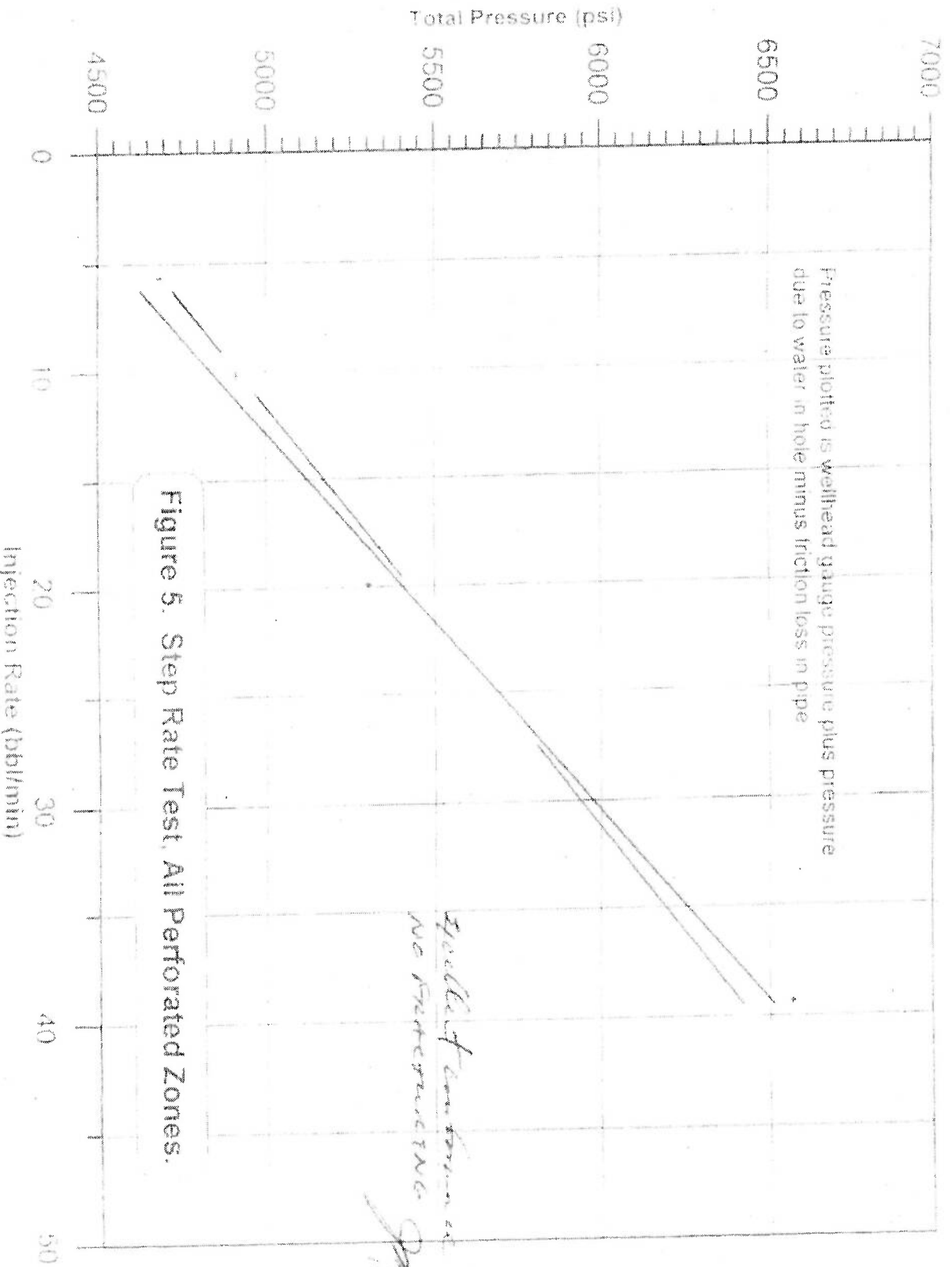
I, John Ashby, represent that by my education, experience and training that I am qualified in the area of interpreting the attached data with respect to the D1 Injection Well. I supervised all on-site drilling and completion operations of the DI-1 Injector, excepting the final Step-Rate Test referenced herein. In my opinion the attached graph of the final overall step-rate test conducted on September 23rd, 2010 illustrates and otherwise confirms that no fracturing occurred during the test period.

Additionally, in my opinion further transient pressure testing of this perforated interval is not warranted with respect to confirming the interval was not hydraulically fractured during the test procedure. In my opinion, further testing and/or modification of the test procedure will not significantly add to understanding the interval's character and will add considerably to the cost of the project.

Respectfully Submitted,

 12/3/11

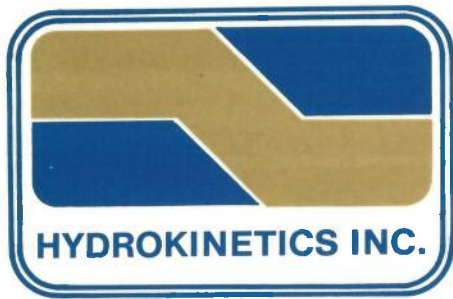
John Ashby, President



D11 All Perforated Zones (Overall)

	A	B	C	D	E	F	
1	Injection rate		wellhead	water in	friction loss in	total pressure at	
2	bb/min.		Press. psi	hole. psi	pipe. psi	top of perms psi	
3							
4	5.65		830	3919	60	4689	✓
5	10.2		1170	3919	175	4913	✓
6	19.9		1980	3919	598	5301	✓
7	39.35		4750	3919	2100	6569	✓
8							

*Data catches
12/2/11 JGH*



NOV 21 2011

12975 W. 24th Pl.
Golden, (Applewood) Colorado, 80401
(303) 237-8865
Fax 237-8869

2012143-08425

November 18, 2011

Ms. Wendy Cheung
U. S. Environmental Protection Agency
Mail Code: 8P-W-GW
1595 Wynkoop Street
Denver, CO 80202-1129

RE: Class I Injection Well DI-1--Additional Requested Information

Dear Ms. Cheung:

Per your email of October 25, 2011, we are providing additional information that should be added to the completion report for injection well DI-1.

We have sent the raw pressure vs flow data to you for all step tests. We also resolved the issue of the laboratory value for TDS in the Wolfcamp formation.

Therefore, there are two outstanding issues--analysis of the step rate tests and the pressure test in the tubing casing annulus demonstrating mechanical integrity.

The pressure test in the annulus was conducted on November 4, 2011 using instructions outlined in EPA Guidance Document 39. The test was conducted by adding approximately 300 gallons to fill the annulus, pressuring the annulus to 1000 psi, and reading gauge pressure at the wellhead in the casing and in the annulus for 30 minutes. The test was successful as shown on the attached EPA MII form. We have also included the original strip chart for this test.

We have plotted the flow vs pressure data for all 5 step rate tests (attached). The step rate tests were conducted on each formation in accordance with EPA's Step Rate Test Procedure. Flow rates were obtained using a flow meter. The pressure plotted is the total pressure seen at the top of the perforated zone for each step in each test. This pressure was calculated by adding the gauge pressure at the wellhead to the hydrostatic head in the well (water level in the well was at ground level for all tests) and subtracting the friction loss in the tubing. Note that in all tests except the Lyons, water was injected into the tubing which fed the perforated zone. In the Lyons test, no packer was installed and the injected fluid was fed into the annulus while pressure was measured in the tubing. Therefore, for the Lyons test, no friction loss calculations were required.

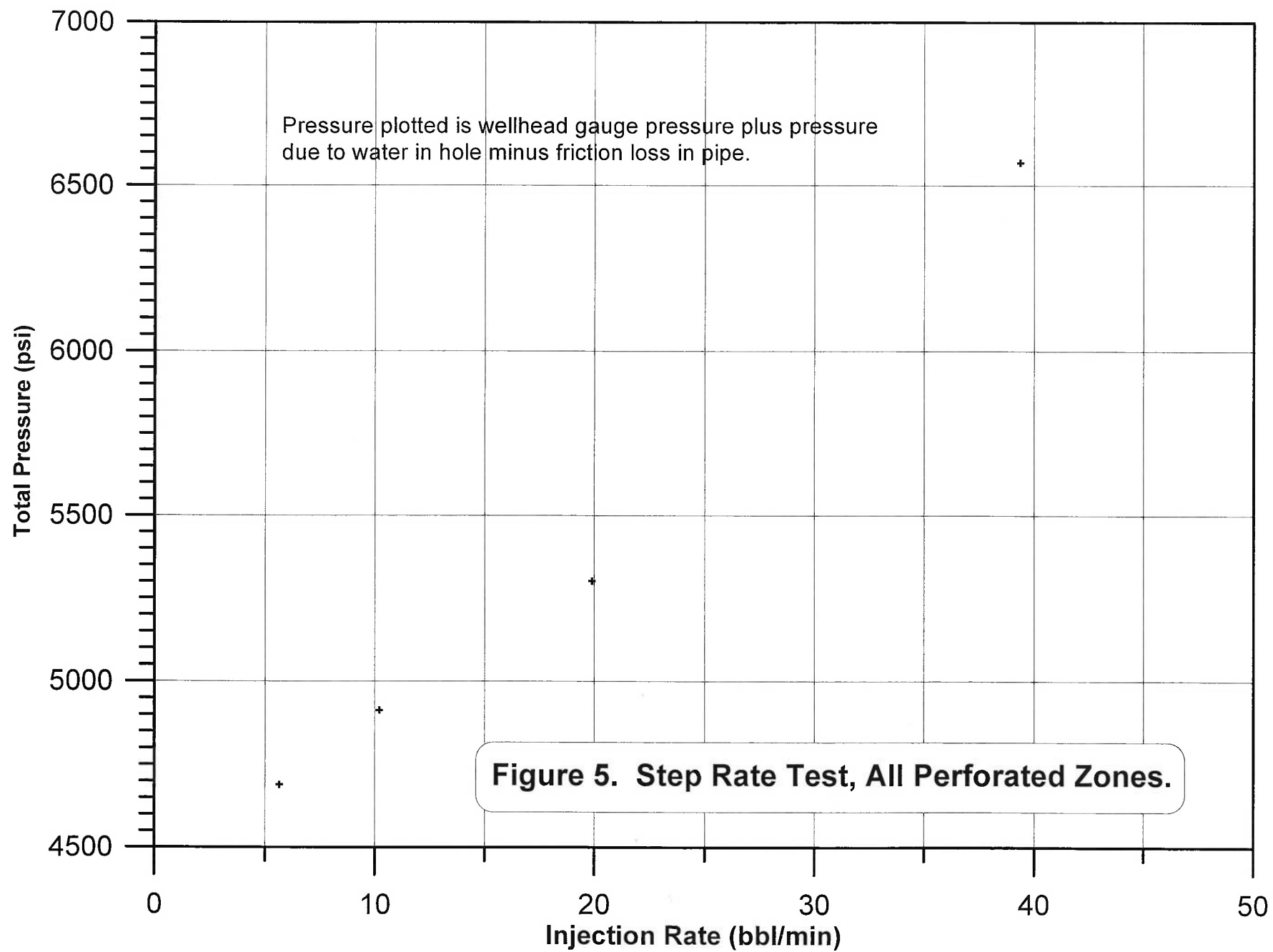
It is apparent by examining Figures 1, 2, 3 and 4 that the individual geologic units tested (Missourian, Amazon/Council Grove, Wolfcamp, and Lyons) were developing themselves as the tests progressed. As pressure and flow increased, there were likely some perforations that were originally plugged with drilling mud which opened up during the test. This accounts for the drop in pressure, in some cases, as pressure and flow increased. The final test, which involved injecting into all perforated zones was conducted after all individual geologic units were step tested and most of the perforation were relatively clean and accepting flow. Figure 5 shows that pressure increased linearly with as flow rate increased. Fracture pressure was not reached in any of the step tests.

If you have any questions, please call.

Sincerely,

A handwritten signature in black ink that reads "Pat OB" followed by a horizontal line and a dash.

Patrick OBrien, PE, CPGS



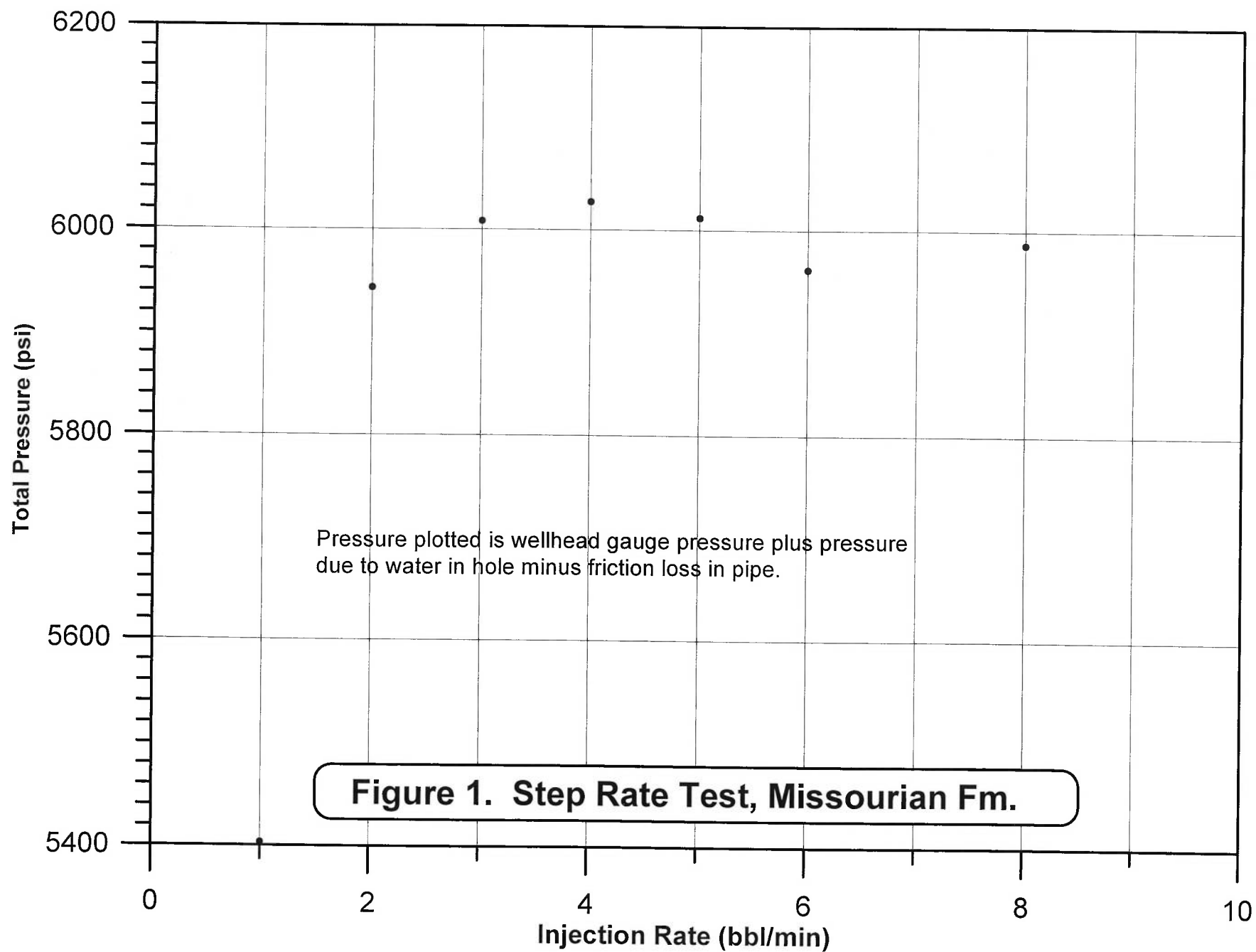
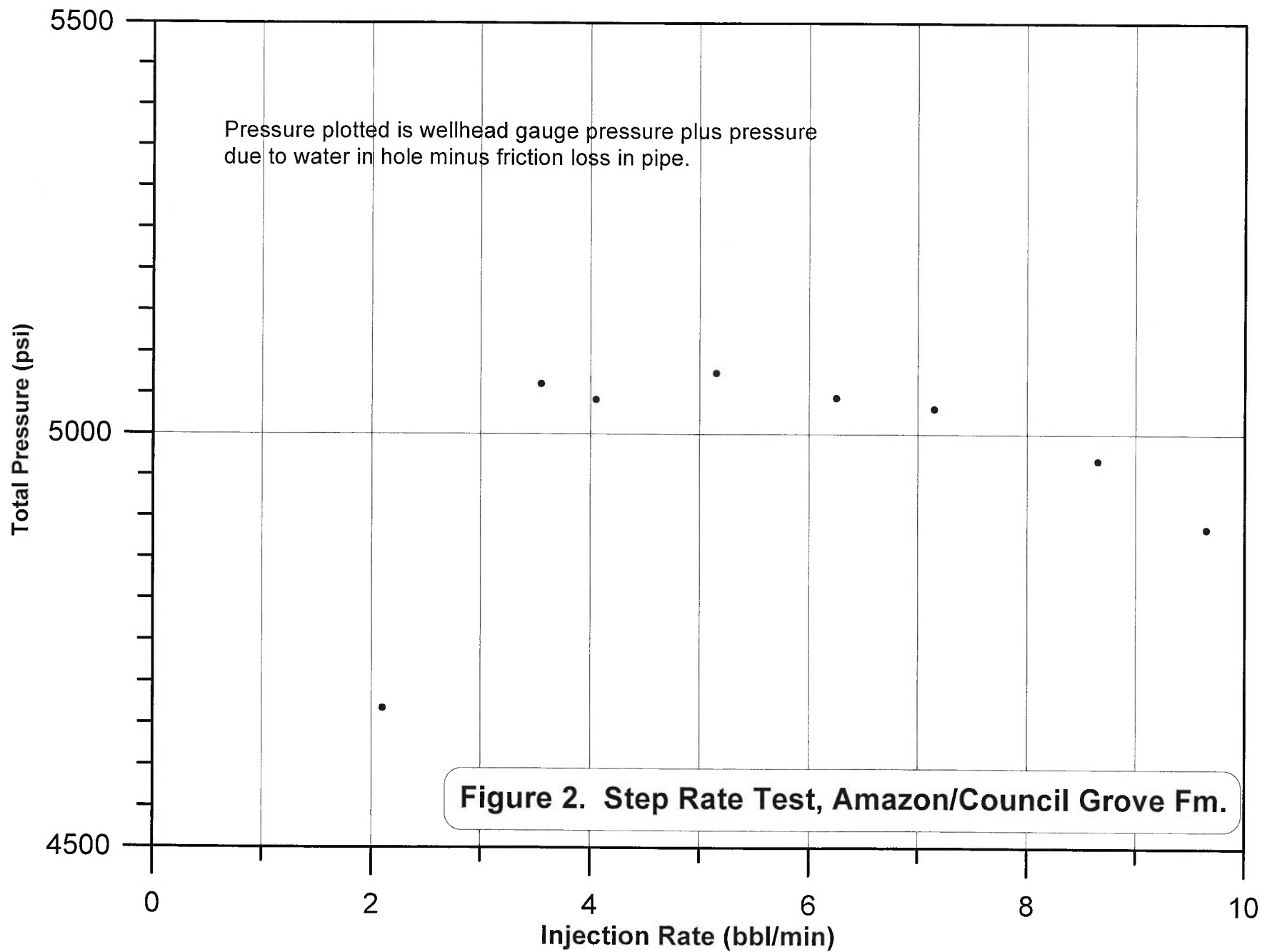


Figure 1. Step Rate Test, Missourian Fm.

D=9,900

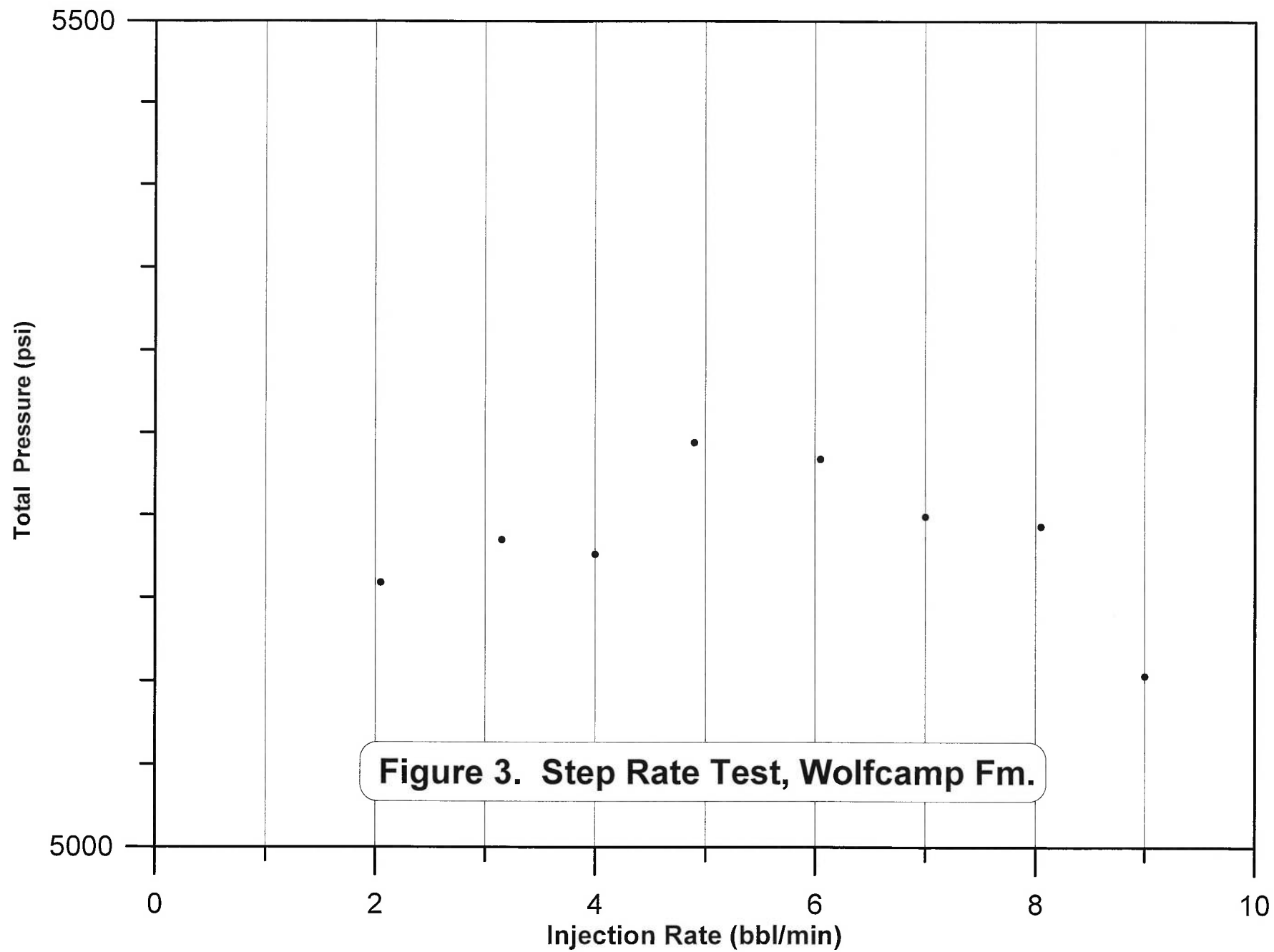
DI1 missourian

	A	B	C	D	E	F
1	Injection rate		wellhead	water in	friction loss in	total pressure at
2	bbl/min.		press. psi	hole, psi	pipe, psi	top of perfs, psi
3	1		1140	4286	23	5403
4	2		1740	4286	83	5943
5	3		1900	4286	178	6008
6	4		2050	4286	309	6027
7	5		2200	4286	474	6012
8	6		2350	4286	674	5962
9	8		2880	4286	1179	5987



D=9,622

	A	B	C	D	E	F
1	Injection rate		wellhead	water in	friction loss in	total pressure at
2	bbl/min.		pressure, psi	hole, psi	pipe, psi	top of perms, psi
3	2.1		592	4165	89	4668
4	3.55		1136	4165	240	5061
5	4.05		1185	4165	308	5042
6	5.15		1397	4165	488	5074
7	6.25		1588	4165	709	5044
8	7.15		1786	4165	920	5031
9	8.65		2133	4165	1330	4968
10	9.65		2370	4165	1650	4885



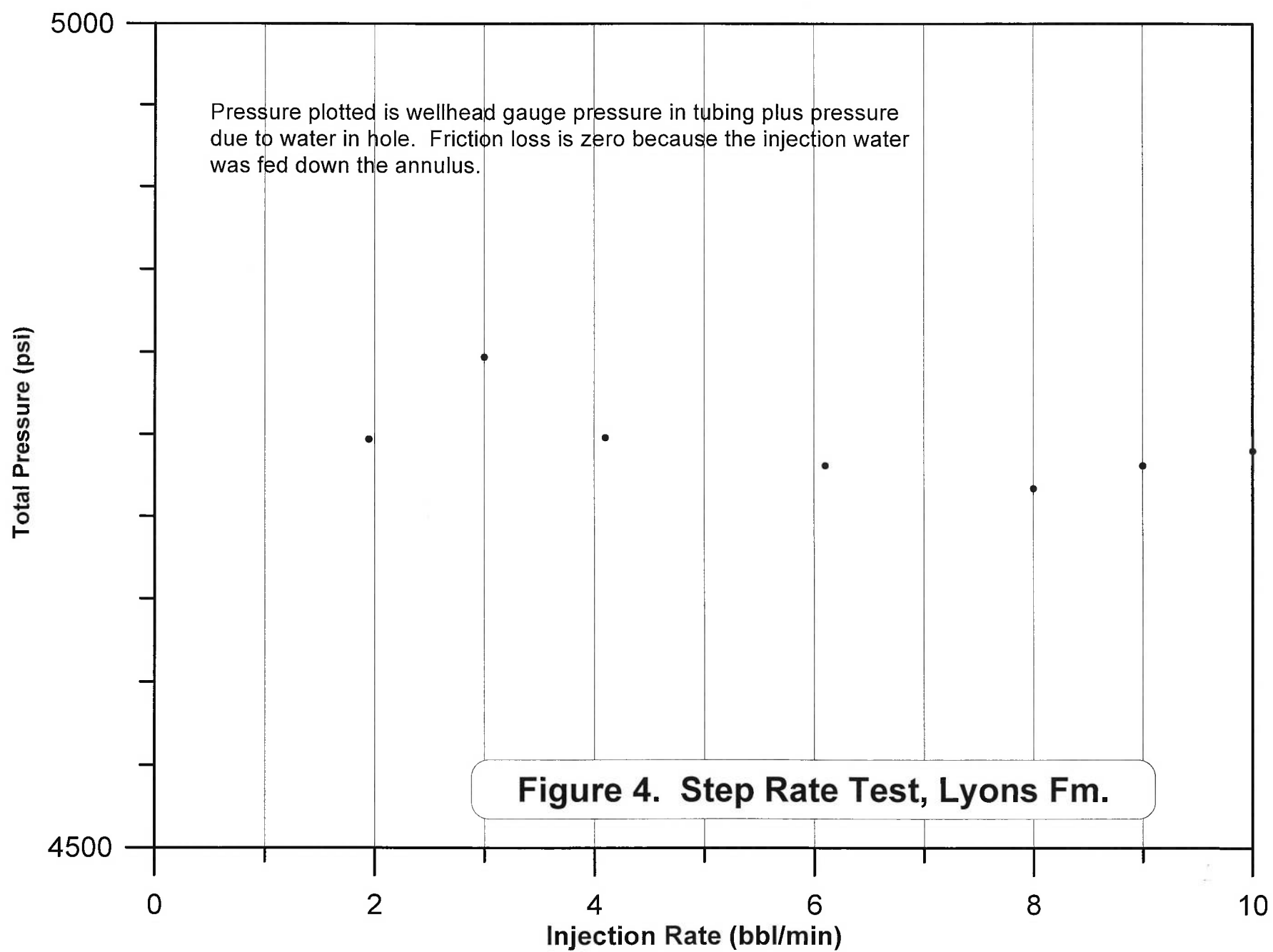
DI1 wolfcamp

D = 9525

	A	B	C	D	E	F
1	Injection rate		wellhead	water in	friction loss in	total pressure at
2	bbl/min.		pressure, psi	hole, psi	pipe, psi	top of perfs, psi
3	2.05		1120	4123	84	5159
4	3.15		1250	4123	188	5185
5	4		1350	4123	297	5176
6	4.9		1560	4123	439	5244
7	6.05		1770	4123	659	5234
8	7		1950	4123	874	5199
9	8.05		2210	4123	1140	5193
10	9		2400	4123	1420	5103

DI1 lyons

	A	B	C	D	E	F
1	Injection rate		wellhead	water in	friction loss in	total pressure at
2	bbl/min.		pressure, psi	hole, psi	pipe, psi	top of perfs, psi
3		1.95	785	3962	0	4747
4		3	835	3962	0	4797
5		4.1	786	3962	0	4748
6		6.1	769	3962	0	4731
7		8	755	3962	0	4717
8		9	769	3962	0	4731
9		10	778	3962	0	4740
10						
11						
12						
13	Note: Fluid injected through annulus					
14	and wellhead pressure read in					
15	tubing.					



DI1 All Perforated Zones (Overall)

D = 9052

	A	B	C	D	E	F
1	Injection rate		wellhead	water in	friction loss in	total pressure at
2	bbl/min.		Press. psi	hole, psi	pipe, psi	top of perfs psi
3						
4	5.65		830	3919	60	4689
5	10.2		1170	3919	176	4913
6	19.9		1980	3919	598	5301
7	39.35		4750	3919	2100	6569
8						

14.9 bbl/min = 628 gal/min